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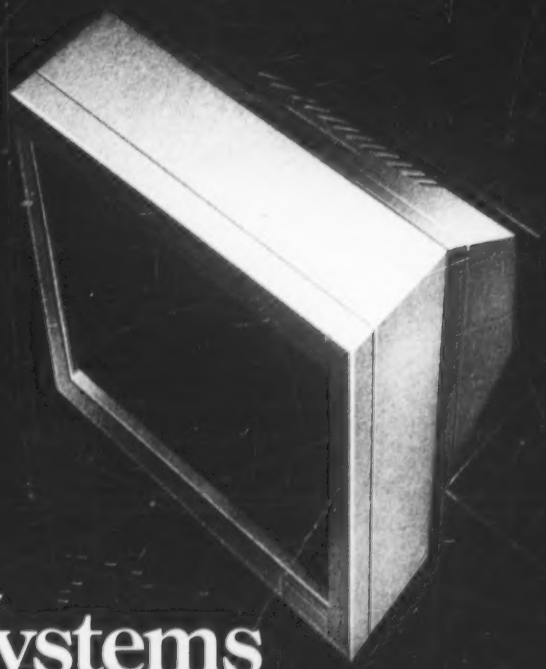
A CAHNERS PUBLICATION JUNE 1991

graphic arts monthly®

THE MAGAZINE OF THE PRINTING INDUSTRY



Hybrid Emerges

Mid-Range Systems Seek New Color Business

Sizing Up the Prepress Market • *Desktop-to-CEPS Gateways*

• *Quality Control for Small Shops*

VOLUME 63, NUMBER 6

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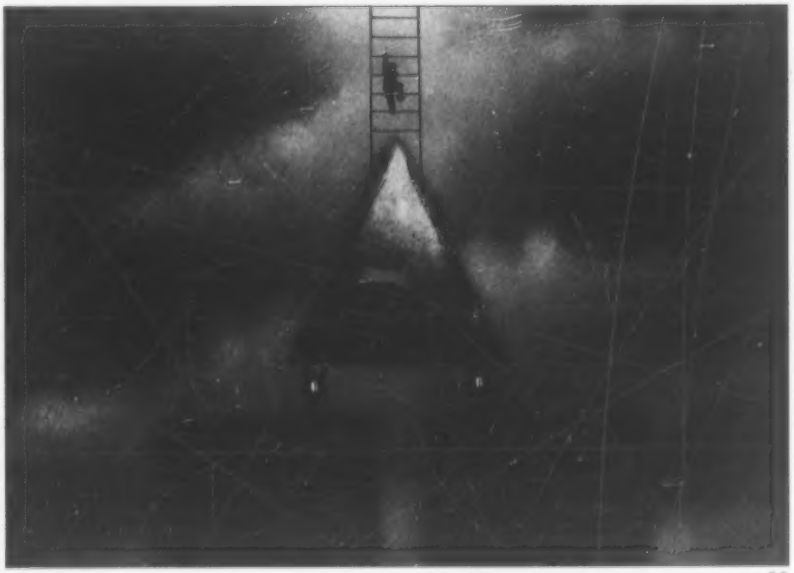
FEATURES



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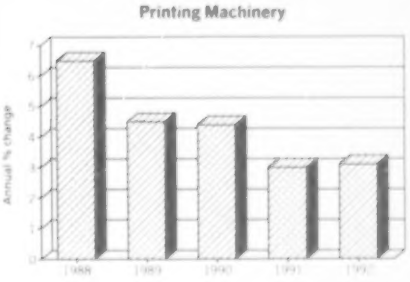
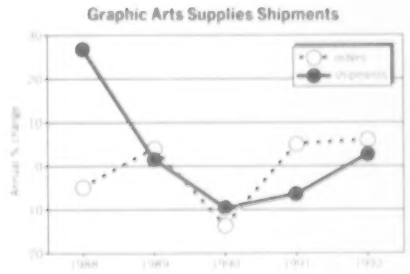
NPES Shows Shipment Data





New orders for graphic arts machinery dropped in the fourth quarter of 1990, bringing the year-end total 13.7% below the year before. Given the current economic recession and, correspondingly, the low level of business confidence, it is unlikely that machinery orders will increase substantially in the near future. Printers will postpone their investment decisions until the first signs of an upturn. After slowing through most of 1991, new orders for graphic arts equipment should still post a 5.1% increase by year-end. Equipment shipment trends tend to follow orders by three-to-four quarters. According to the latest survey from the National Printing Equipment and Supply Association, shipments dropped 9.7%, to a total of $2.62 billion. Total shipments will remain sluggish and decrease another 6.5% in 1991, to $2.45 billion. In 1992, shipments are expected to recover 2.6%, to just over $2.5 billion.

NPES data also show that, in the fourth quarter of 1990, graphic arts supplies shipments stood 3.8% above the same period the year before. This boost pushed the year-end total to $1.83 billion, 4.4% above the 1989 level. Given the general inflationary trends in 1990, it is safe to assume that much of this gain came from higher prices, not more unit sales. Shipments of supplies are much less volatile than shipments of machinery. While printers can and will delay machinery investment decisions during times of economic hardship, they continue to purchase those supplies which are absolutely necessary for day-to-day business activity. Still, supplies are not completely immune from the effects of an economic recession. Supplies shipments are expected to increase a slower 3% in 1991 and 3.1% in 1992, totaling $1.88 billion and $1.94 billion, respectively.

This month's datatable has been revised slightly to focus on employment, machinery, and supplies data. In March 1991, there were 28,000 fewer jobs in the printing and publishing industry than in March 1990. The commercial printing sector, which employs 35% of the workers in this industry, lost 10,500 jobs during this 12-month period. Average hourly wages continued to grow, albeit at a slower pace than in the past few years. After solid 3.4% increases in 1989 and 1990, printing and publishing industry wages are headed for a 2.4% rise in 1991. Commercial printing wages should post a 2.5% rise, following increases of 3.3% in 1989 and 3.5% in 1990.

SUPPLY INDICATORS

				Annual Percent Change			
	Mar 90	Feb 91	Mar 91	1989	1990	1991	1992
Employment (1)							
Printing & publishing	1589.7	1557.0	1561.7	1.0	0.9	-0.1	1.8
Commercial printing	552.7	542.7	542.2	-0.9	-0.9	-0.3	1.6
Productivity (2)							
Printing & publishing	101.0	103.2	102.7	5.0	2.2	0.6	2.8
Average Hourly Earnings (3)							
Printing & publishing	11.17	11.37	11.38	3.3	3.4	2.3	3.4
Commercial printing	11.36	11.65	11.68	3.3	3.5	2.5	3.5
	Q4/89	Q3/90	Q4/90	1989	1990	1991	1992
Graphic Arts Machinery (4)							
New orders	163.9	141.6	134.5	3.0	-13.7	5.1	6.0
Shipments	146.0	137.7	136.3	1.5	-9.7	-6.5	2.6
Graphic Arts Supplies (4)							
Shipments	190.8	184.6	186.5	4.5	4.4	3.0	3.1

(1) Thousands of employees, U.S. Dept. of Labor. (2) Index 1977 = 100, Citibank Economics. (3) Dollars per hour, U.S. Dept. of Labor. (4) Index 1986 = 100, National Printing Equipment and Supplies Association. All forecasts by Citibank Economics.

Sizing Up the Prepress Segment

Volatile economic conditions held sway for the industry last year. What lies ahead?

Prepress sales in 1990 may not have equaled or surpassed the goals set in strategic planning sessions, but they reflected a number of ongoing developments.

Acquisitions, volatile conditions within the advertising community, and the gloomy economic climate were just some of the changes that had an impact on the prepress segment last year.

What will sales be in 1991, and the years to come?

To answer that question the reader is referred to the April 29, 1991 issue of the *Seybold Report on Publishing Systems.* Quoting from page 23 of that issue, which reports on the March 1991 seminar in Boston on Professional Publishing, 12 points are discussed about the state of the prepress industry in 1995.

"Here are the main points: use of color will grow quickly; color will become cheaper; printing color on demand will become common; rapid technological progress will help move things; designers will take on more production responsibility; color production will be simplified, fewer skills will be needed; training and support will be key issues; consultants and VARs [value added resellers] will play a major role; more consolidation of vendors will occur; software will become more modular; standards will increase in importance; and workgroups will be supported."

The panel putting forth this information included: Yoav Chelouche of Scitex America, Bruce Harrison from Optronics, Ranjit Mulgaonkar of Aldus, and Lee Silverman from Agfa Compugraphic.

As to actual prepress sales data, let's examine U.S. prepress sales from 1986 through 1990.

Compilation of prepress sales volume indicates that for the year 1990 the prepress trade houses, along with printers who have full-service facilities, did $5.367 billion, contrasted with $5.054 billion in 1989. Thus, growth in 1990 versus 1989 was $313 million.

Comparing the top 10 printers and prepress houses in sales for 1990 shows $654.1 million, contrasted with $593.4 million in the year 1989. Overall growth for the top 10 companies in prepress sales for the year 1990 comes to $60.7 million.

The data come from a questionnaire mailed to printers and prepress companies by Trade & Technology Press, Stamford, Conn., who publish the annual *PrintMarkets* report. Imaging service bureaus, PostScript service bureaus, traditional service bureaus, and quick printers were *not* selected this year for prepress sales data.

Readers should acknowledge that sales data on prepress activities is not only difficult to sort out but also infrequently published. In addition, prepress sales figures are not available from organizations and operations where prepress sales are bundled with other charges. For example, a full-service printer that produces a catalog may bill the entire job (prepress and printing) at one price without indicating separately the charges for prepress services.

As a further caution to the reader, when examining the integrity and extent of supplied data—from whatever source—readers must always heed the ca-

By Earl Wilken
Associate Editor

Peter Neumann

veats of researchers and editors. For example, at the request of this publication, Trade & Technology Press has separated trade services sales data from prepress services sales for the years 1986 through 1990. The categories in trade services sales—cutting and finishing, and binding—are to now appear in a separate category, finishing services.

So this year the charts (1986-1990) will only report the gross sales of prepress services. It is also important to remember that not all printers and prepress houses report financial operations on a calendar year basis.

Any comparison with earlier data appearing in *GAM's* Print Market Trends must take into consideration all of these variables. It is unfortunate that data on prepress sales from specific sectors of business and non-business organizations are not available.

Typical Products

Composition and Imaging
Color Separations
Electronic Prepress
Typesetting
Photo Engraving
Plate Making

Typical Users

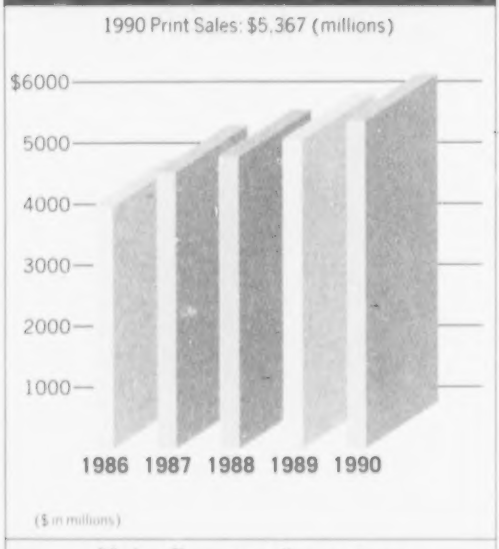
Commercial Printers
Advertising Agencies
Publishers
In-Plant Shops

To better comprehend the prepress data, it is necessary to review the services and products offered to clients by printers and prepress companies. The services and products for this report on prepress sales include composition and imaging, color separations, electronic prepress services, typesetting, photo engraving, and platemaking. Although proofing is not listed separately, it falls either under composition and imaging, or color separations.

As we go to press with this report, Trade & Technology Press is nearing completion of all segments of 1990 data for its *Print-Markets* report. Since data in the prepress category are only available on the top 10 firms, analyzing the prepress sales figures should shed some light on growth patterns but not necessarily on how they were achieved.

In the 1989 report on the top

Prepress Operations



Major Prepress Operations

Rank	Company	Sales in millions*
1	Wace USA (Techtron Imaging)	$145.0
2	Applied Graphics	110.0
3	Sullivan Graphics	94.0
4	Devon Group	76.6
5	Schawk Inc.	58.0
6	Enteron Group	47.0
7	Lanman Companies	34.0
8	Color Associates	30.0
9	Potomac Graphic Industries	30.0
10	Volt Information Sciences	29.5

*Note: Preliminary Ranking. Source: PrintMarket.

Chart by Annabelle Carter

10 printers and prepress shops, sales data included cutting and finishing, and binding. For the sake of comparison to 1990 revised data as shown in the accompanying listing, here's the ranking of the top 10 operations in the 1989 report:

1. Sullivan Graphics;
2. Techtron Imaging;
3. Devon Group;
4. Applied Graphics;
5. Schawk Inc.;
6. Revere Graphic;
7. Volt Information;
8. Parkway USA;
9. R.R. Donnelley & Sons; and
10. Lanman Companies.

When analyzing the shift in rankings, it is obvious that Sullivan Graphics, number one in 1989 with $134 million, went to a third position in 1990, because it had either $40 million in bindery, cutting, and finishing sales (which were transferred to the new category), a flat year, a drop in revenue, or some combination.

Wace USA moved from the second position in 1989 to the first in 1990 as a result of increased sales and the inclusion of revenue from the acquisition of Parkway USA. Parkway was ranked eighth in 1989 with $31.5 million.

Although the Devon Group was ranked number three in 1989 with sales of $76.4 million, its 1990 ranking is number four, with $76.6 million in sales.

In both the 1989 and 1990 rankings, Schawk Inc. stays at the fifth position with sales of $55 million in 1989 and $58 million in 1990.

A similar situation to that of Schawk applies to the Enteron Group (which includes Revere) in that it was listed as number six in 1989 and 1990. Sales in 1989 were $38.5 million, with 1990 figures showing an increase to $47 million.

Volt Information Sciences posted sales of $33 million in 1989 at number seven. In 1990, the Lanman Companies came in with sales of $34 million and took over the number seven spot, up from number 10.

Color Associates, with 1990 sales of $30 million, moved into the number eight position, replacing Parkway USA, ranked eighth in 1989. Color Associates was ranked number 15 in 1989.

Holding down the number nine spot in 1990 is Potomac Graphic Industries with $30 million in sales. Potomac was ranked number 11 in 1989.

In the number 10 position for 1990 is Volt Information, with $29.5 million in sales.

To stand back from the prepress sales data just presented and analyze the shift in sales rankings is not only difficult but also precarious, because one may assume certain trends or results based on insufficient information or slanted information.

One question that comes to mind: do all respondents understate sales figures to protect proprietary financial results? Another question concerns how companies categorize prepress work and pass these charges on to clients. Undoubtedly there are other aspects that enter into the prepress sales data received from printers and prepress trade houses.

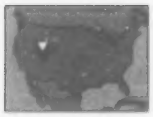
Perhaps the most troublesome element in presenting prepress sales data for 1990 is the lack of sales figures from current imaging centers, PostScript service bureaus, traditional service bureaus, and quick printers. Another important category relating to prepress sales is the graphic design firm and some of the more prominent graphic designers.

Keep in mind that none of the above comments, and especially those concerning the rankings, addressed the U.S. economic climate today and in the future. Management in printing firms with prepress capabilities as well as managers of prepress houses must look at those trends, weak for the moment, but definitely coming into play, to exert an impact on prepress services.

Reference is made to declining advertising in magazines, newspapers, catalogs, etc. Coupled with this decline is the growing importance of the rarely-understood force of multimedia products, systems, and services. Of all the trends to examine, managers must not ignore the threat as well as the opportunities of this new medium—multimedia.

graphic arts monthly

Sales, Profits Are Sky-High



About 10 years ago, a team of economic/demographic modelers decided to redraw the regions of the United States, assigning them descriptive names: the Pacific Northwest (including northern California) was called Ecotopia, the deep South was called Dixie, the upper Midwest was called the Rust Belt, and so on.

The name they assigned the Mountain region, the subject of this month's report, was the Empty Quarter.

Which isn't entirely fair; only part of it is empty. Montana and Wyoming have fewer than a million people each, and Idaho and Nevada are only slightly larger. (Nevada's numbers will change when new census data become available, primarily because of the emergence of Las Vegas as the first boom town of the 1990s.) Both Colorado and Arizona have good-sized populations concentrated primarily in cities. (Anybody who's ever tried to get in or out of Denver at five in the afternoon knows the wide open spaces are long gone.) And, considering that half the state's population lives in greater Salt Lake City, even Utah could technically claim to be urban.

By Peter Johnston
Special Projects Manager

The fact remains, however, that the Mountain region has approximately the same population as New England in an area 13½ times larger. Commercial printing is dependent not just on population but on the concentration of businesses, which is directly relative to the degree of urbanization. This is reflected in the Mountain region's printing activity: it may have the same number of people as New England, but it has only half the volume of printing.

On the other hand, the printing industry in these eight states (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming), while relatively small and scattered, seems to be quite robust. Commercial printing sales for the region were up 8.3% for 1990 compared to 1989, the largest increase of any region in the country. Arizona was up a startling 9.1%, the biggest increase of any reasonably populous state. Assuming its problems with climate and water can be solved, demographers expect Arizona to become one of the so-called "super states" in the fairly near future.

Jean Wisenbaugh

Individual commercial printers responding to our research questionnaire showed, not surprisingly, that nearly 60% had an increase in sales for 1990 over 1989. The increases were substantial as well as widespread; 28% had gains of over 10%, and another 28% had gains of over 20%. Furthermore, these printers are profitable; profitability for Mountain printers increased significantly, in fact, with 59.1% showing margins of 5% or more for 1989, up to 80% in 1990. Also shown are the extent of sales changes from 1989 to 1990, profitability and capacity comparisons, and a business perception index.

Reprints may be ordered from Carol Bien, Cahners Publishing, Reprint Department, 1350 E. Touhy Ave., Des Plaines, IL 60018.

Regional Overview

Commercial printing contributes nearly $3 billion annually to the economy of the Mountain region, making it an important source of employment opportunity, capital generation, and tax revenue. Of the region's 1,733 printing sites (re PIA: commercial printers), 1,105 are concentrated in Colorado and Arizona, the area's economic heavyweights. Revenue figures in the charts are in constant dollars, not adjusted for inflation.

COMMERCIAL PRINTING

Value of Shipments

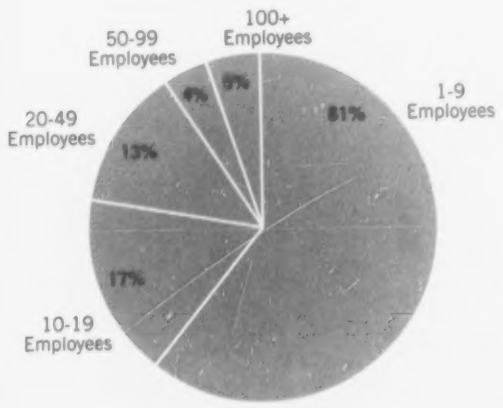
State	Sales, 1990 ($ million)	% of Region	Sales, 1989 ($ million)	% change (1989-1990)
Colorado	$ 828	30.1%	$ 762	8.7%
Arizona	779	28.3%	714	9.1%
Utah	438	15.9%	408	7.4%
Nevada	264	9.6%	243	8.6%
Idaho	187	6.8%	174	7.5%
New Mexico	146	5.3%	137	6.6%
Montana	78	2.8%	73	6.8%
Wyoming	34	1.2%	31	9.7%
TOTAL	$2,754	100%	$2,542	8.3%

Source: PIA Economics Department

Printing Sites

State	Sites
Colorado	651
Arizona	454
Utah	193
New Mexico	128
Nevada	100
Idaho	92
Montana	73
Wyoming	42
TOTAL	1,733

All Graphic Arts Plants, by Employee Count



Source: GAM 1990 Plant Equipment Market Profile

Charts and graphs by Lisa Hilgers

All Graphic Arts Plants, by Function

Function	# of Plants
Commercial	1,186
Newspaper (w/Commercial)	86
Newspaper (w/o Commercial)	104
Book & Pub	120
Business Forms	29
Converters	31
Noncommercial	325
Trade	144
Quick Printers	232

Source: GAM 1990 Plant Equipment Market Profile

DEMOGRAPHICS

The Mountain populace is small but well educated. The high incidence of college graduates probably reflects the tendency for people to migrate to this area as adults, either as retirees (especially Arizona) or lovers of the outdoors.

Population and Population Changes

State	Population	Rank	Change (1980-86)
Arizona	3,279,000	26	22.1%
Colorado	3,267,000	27	20.3%
Utah	1,665,000	35	14.0%
New Mexico	1,479,000	37	13.5%
Idaho	1,002,000	41	13.1%
Nevada	963,000	43	8.0%
Montana	819,000	44	6.2%
Wyoming	507,000	50	4.1%
TOTAL	12,981,000		

Educational Attainment

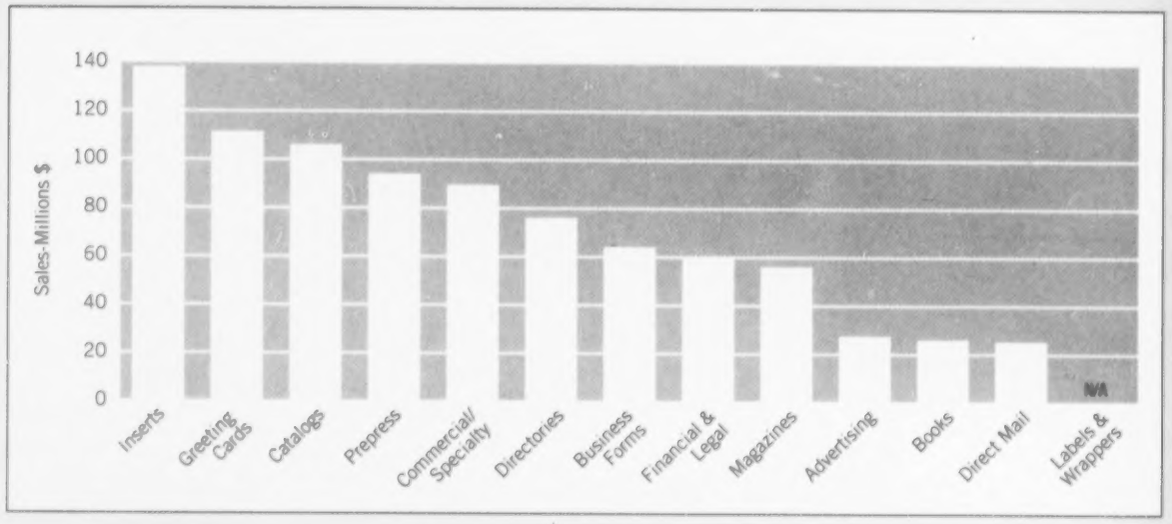
State	High School Graduates	College Graduates
U.S. Average	66.5%	16.2%
Utah	80.0%	19.9%
Colorado	78.6%	23.0%
Wyoming	77.9%	17.2%
Nevada	75.5%	14.4%
Montana	74.4%	17.5%
Idaho	73.7%	15.8%
Arizona	72.4%	17.4%
New Mexico	68.9%	17.6%

Source: U.S. Dept. of Commerce, Bureau of the Census

Market Profile

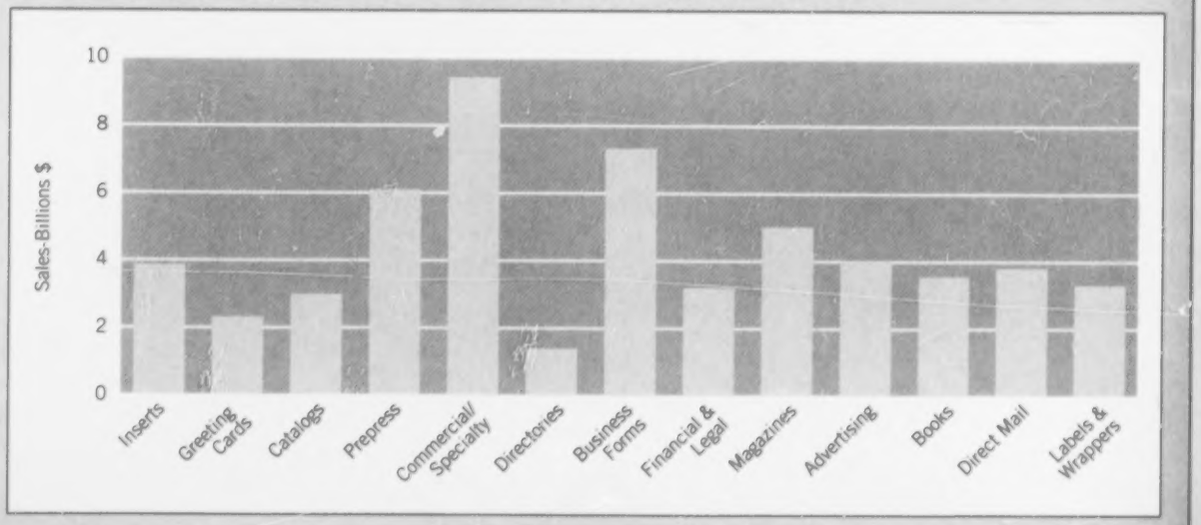
Ranking of Product Segments . . .

This ranking, taken from a list of larger printers, shows (unfortunately) the ability of statistics to create confusion, especially in a small sample. The presence of inserts at the top of the list is due entirely to the presence of manufacturing sites belonging to three major printers, R.R. Donnelley, Meredith/Burda, and Treasure Chest Advertising. The "dominance" of greeting cards is even more singular; it is due to one company, Gibson Greetings of Colorado Springs. Generally, one printer noted, the populous regions here remain very competitive.



. . . Compared to National Totals

The same comment can be made about catalog printing, most of which is done by two plants, belonging respectively to R.R. Donnelley and Ringier America. The biggest *indigenous* market segment in the Mountain region is prepress, and when more current data become available, this trend will be even more apparent. One category, label & wrapper printing, has no representation in the area. These bar charts are presented in similar order to simplify comparison between segment concentration in the Mountain region and the U.S. as a whole.



Leading Printers in Major Markets

COMPANY	SALES
INSERT PRINTERS	
R.R. Donnelley & Sons Company, Reno, NV	35.0
Meredith/Burda Corporation, Casa Grande, AZ	30.0
Treasure Chest Advertising, Salt Lake City, UT	25.0
Treasure Chest Advertising, Sparks, NV	15.0
Graphics Arts Publishing, Inc., Boise, ID	11.5
A.B. Hirschfeld Press, Inc., Denver, CO	9.0
Intermountain Color, Boulder, CO	8.0
Colorgraphics of Utah, Bountiful, UT	5.5
GREETING CARD PRINTERS	
Current, Inc., Colorado Springs, CO	111.3
CATALOG PRINTERS	
R.R. Donnelley & Sons Company, Reno, NV	50.0
Ringier America, Inc., Phoenix, AZ	40.0
A.B. Hirschfeld Press, Inc., Denver, CO	5.5
Messenger Graphics, Phoenix, AZ	3.0
Eastwood Printing & Publishing, Denver, CO	2.5
Publishers Press, Inc., Salt Lake City, UT	2.5
American Web, Inc., Denver, CO	2.5
PREPRESS	
GBP Industries, Phoenix, AZ	55.0
Volt Technical Services, Phoenix, AZ	23.0
Spectrum, Incorporated, Golden, CO	14.5
Messenger Graphics, Phoenix, AZ	1.5
COMMERCIAL/SPECIALTY PRINTERS	
Rocky Mountain Bank Note, Lakewood, CO	15.0
Pro Litho, Provo, UT	12.0
Current, Inc., Colorado Springs, CO	12.0
Frederic Printing, Aurora, CO	10.0
Imperial Litho Graphics, Phoenix, AZ	10.0
Salt Lake Printing Center, Salt Lake City, UT	8.5
Kistler Graphics, Denver, CO	8.0
Blaine Hudson Printing, Salt Lake City, UT	7.5
Messenger Graphics, Phoenix, AZ	3.0
Colorgraphics of Utah, Bountiful, UT	2.0
Publishers Press, Inc., Salt Lake City, UT	1.5
DIRECTORY PRINTERS	
Norwest Publishing Company, Greeley, CO	70.0
Graphics Arts Publishing, Inc., Boise, ID	6.0
BUSINESS FORMS PRINTERS	
Rocky Mountain Bank Note, Lakewood, CO	40.0
Woehrmyer Business Forms, Aurora, CO	13.0
BEI Graphics, Boulder, CO	11.0
FINANCIAL/LEGAL PRINTERS	
Rocky Mountain Bank Note, Lakewood, CO	60.0
MAGAZINE PRINTERS	
American Web, Inc., Denver, CO	13.5
Pacific Press Publishing Assn., Boise, ID	8.5
A.B. Hirschfeld Press, Inc., Denver, CO	7.0
Eastwood Printing & Publishing, Denver, CO	6.5
Ringier America, Inc., Phoenix, AZ	5.0
Salt Lake Printing Center, Salt Lake City, UT	4.5
Intermountain Color, Boulder, CO	3.5
Colorgraphics of Utah, Bountiful, UT	3.5
Messenger Graphics, Phoenix, AZ	2.5
Publishers Press, Inc., Salt Lake City, UT	1.5
ADVERTISING PRINTERS	
Imperial Litho Graphics, Phoenix, AZ	12.0
Pro Litho, Provo, UT	6.0
Frederic Printing, Aurora, CO	5.0
Blaine Hudson Printing, Salt Lake City, UT	4.5
BOOK PRINTERS	
Publishers Press, Inc., Salt Lake City, UT	7.5
Pacific Press Publishing Assn., Boise, ID	7.0
Salt Lake Printing Center, Salt Lake City, UT	6.5
Messenger Graphics, Phoenix, AZ	5.0
DIRECT MAIL PRINTERS	
Mail-Well Envelope, Phoenix, AZ	17.2
Kistler Graphics, Denver, CO	8.0

Selective listing, which indicates only the concentration of larger plants in larger segments, is from *Printmarkets*, Trade & Technology Press, Stamford, Conn., based on data provided by firms involved. Sales in millions.

How Printers Are Doing

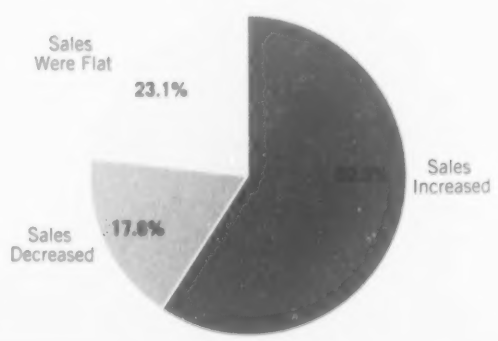
Based on a survey of firms in the region, conducted by Cahners Publishing

Profile of Respondents

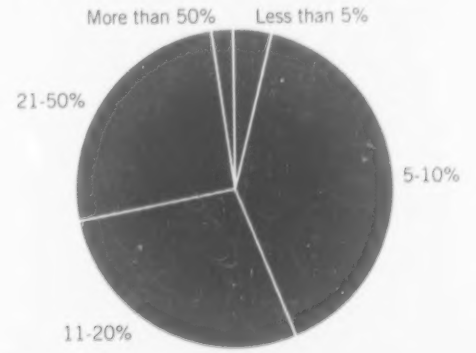
Commercial printers in the Mountain region responding to a recent mail survey reported year-over-year changes in their annual sales, profitability, and operating capacity. They also revealed how they perceived the outlook for business in their area. The following information is as reported by survey respondents; 1990 gross sales were estimated.

Gross Sales in 1990		# of Employees	
Less than $500,000	5.3%	1-4	2.1%
$500,000-749,999	14.9%	5-9	12.8%
$750,000-999,999	13.8%	10-19	33.0%
$1 million-2,499,999	35.1%	20-49	31.9%
$2,500,000-4,999,999	18.0%	50-99	12.8%
$5,000,000-9,999,999	11.7%	100+	2.1%
$10 million or more	1.1%		

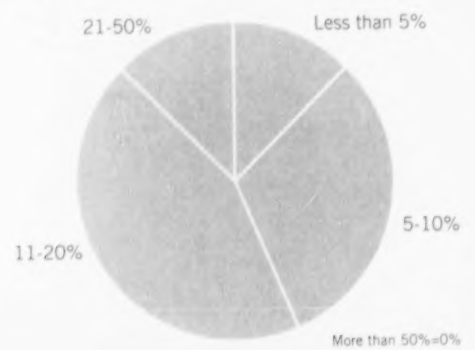
How Sales Changed, 1989 to 1990



If Sales Increased, How Large Was Increase?

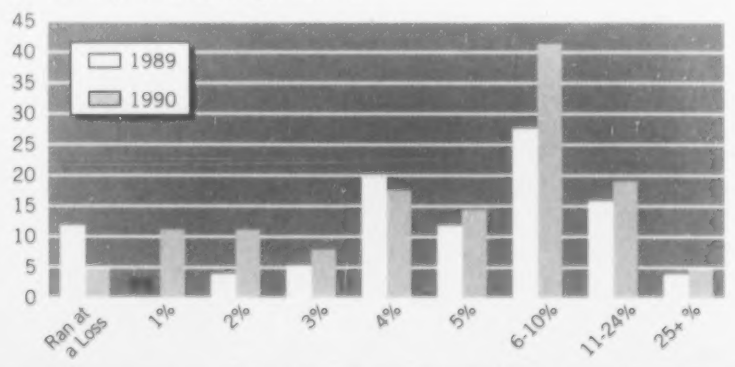


If Sales Decreased, How Large Was Decrease?

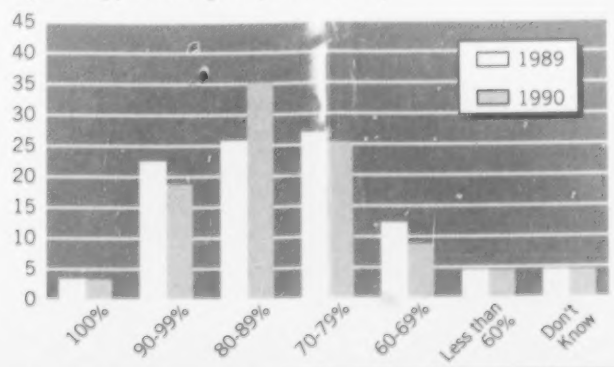


PROFITABILITY & CAPACITY

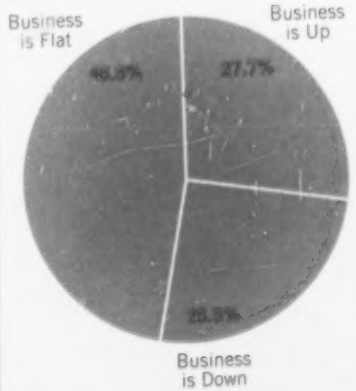
Profit as a percentage of gross sales



Operating percentage of plant capacity



Perception Index



Comments by Printers

- A diverse number of new businesses have moved into the area.
- Tourism is increasing in our area, so the press runs are increasing.
- Our business is stable, but industry-wide it seems to be soft.
- The Denver metro area has experienced economic bad times in our industry for the past few years.
- Some plants in our area have been slow. Fortunately, we have kept pretty busy.
- We tend to never reach the extremes (high or low) experienced in other parts of the United States.

Strategies for the Reuse of Paper

The following is the first piece of a two-part guest column excerpted from a speech given by Thomas C. Norris, chairman, president and CEO of paper manufacturer P.H. Glatfelter Co., Spring Grove, Pa., at the recent Focus '95 Landmark Recycling Symposium, in Atlanta.

Printing and writing papers consume about 1.4 million tons of waste stream recovered fiber, according to information published by the American Paper Institute (API). As part of the pulp and paper industry commitment to increase the reuse of paper to 40%, a voluntary commitment by this industry, the Franklin Study projects this figure will increase to 2.0 million tons by 1995. This will still represent only about 6% of total printing and writing production capacity in that year.

I recently reviewed the API capacity survey issued at the end of last year, and found that through the end of 1993, 300,000 tons of additional fiber will be used by our segment of the industry. This means that fiber reuse will increase to 1.7 million tons, a rate of growth of more than 7% per year. It also means that our segment of the industry is essentially on target to meet the Franklin projection.

I believe an opportunity exists for our segment of the industry to recycle even more, thus attaining greater than 6% of the printing and writing capacity. However, for this to occur within a reasonable period of time, immediate steps to encourage investment must be taken.

The capital required to increase the use of waste to produce printing and writing papers from 1.4 million tons to 2.0 million tons is going to be substantial; how large isn't really known, but will depend on whether new papermaking capacity has to be installed, or if this new capacity will come from modifications to existing machines. This must be determined by individual companies.

However, I can tell you that capital requirements just for deinking, waste treatment and pulping alone—to increase the 600,000 tons projected, and not counting expenditures for papermaking equipment or utilities—are estimated to be about $600 million, a sum that no industry will spend without consideration of availability and cost of capital, return on investment, and other financial questions. The total amount of capital that needs to be invested is, of course, considerably higher than that.

Anyone considering an investment of this magnitude in the recycled printing paper business must carefully examine at least four additional factors: long-term market demand (that is, for recycled versus virgin fiber printing papers); fiber sources; fiber cost; and environmental considerations, including permitting.

The market demand question centers around the issue of whether a market for recycled printing paper will exist for a sufficient length of time for a manufacturer to obtain a reasonable return on his investment. In this regard, I am highly encouraged by the fact that demand for recycled paper is currently being driven by a real problem: a shortage of available landfill space, coupled with the high cost of replacement landfill space. This is in sharp contrast to the short-lived increase in demand for recycled products we experienced during the late '60s and early '70s, when demand was based largely on a desire to conserve trees. Until recently, printing grade recycled products were deemed by many to be inferior in performance and/or appearance, and generally sold at a discounted price to comparable virgin fiber products. Reversion to this mindset by consumers would be a great restraint to the achievement of an adequate return on investment. At the same time, I am highly discouraged in the current printing paper market; impacted heavily by the recession and overcapacity, the recycled drive has lost a lot of its steam.

Insofar as fiber is concerned, most high-quality recycled printing and writing paper manufactured today is made with pulp substitutes and preconsumer fiber that must be deinked, the primary source of which is printing plant and converting plant trimmings, and waste destined for disposal of some sort, if a suitable outlet for reuse is not available. Small amounts of postconsumer fibers are also used.

Essentially, none of this so-called postconsumer fiber is collected at curbside. I believe sufficient fiber exists to support an industry expansion to the projected 2.0 million tons, and even higher. It will come from two main sources: high-grade preconsumer deinking fiber, and postconsumer office waste, both of which require source separation and deinking. It will not come from curbside collection.

Today, recycled printing and writing uses less than 20% of the high-grade deinking preconsumer fiber recycled in the U.S. The remainder is used by the tissue and paperboard industries, or is exported. Since printing and writing paper represents a higher-value use for this fiber than does tissue or paperboard, increases in the production of recycled printing and writing paper will heighten competition for this fiber. That will, in turn, lead to substantial price increases, as there is little more of this type of fiber available for collection.

The impact on the total waste paper utilization is to force all users, including the printing and writing industries, to search for ways to use lower classes, and therefore lower cost materials, as part of their furnish. This move may ultimately impact household separation, and therefore curbside collection. ▤

Fiber Reuse in Recycled Printing and Writing Paper

Year	Tons (millions)
1990	1.4
1993*	1.7
1995*	2.0

*Estimated
Source: API & Franklin Associates

Next month: Office Waste & Environmental Considerations.